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ABSTRACT

0034 A semiconductor device and method for forming the same for improving charge mobility in NMOS and PMOS devices simultaneously, the method including forming a first dielectric layer including a stress type selected from the group consisting of tensile stress and compressive stress over the respective PMOS and NMOS device regions; removing a portion of the first dielectric layer overlying one of the PMOS and NMOS device regions; forming a second dielectric layer including a stress type opposite from the first dielectric layer stress type over the respective PMOS and NMOS device regions; and, removing a portion of the second dielectric layer overlying one of the PMOS and NMOS device regions having an underlying first dielectric layer to form a compressive stress dielectric layer over the PMOS device region and a tensile stress dielectric layer over the NMOS device region.